

STUDIES ON EXHAUST EMISSIONS OF DI DIESEL ENGINE WITH LOW GRADE LHR COMBUSTION CHAMBER FUELLED WITH LINSEED BIODIESEL

M. V. S. MURALI KRISHNA & K. VAMSI KRISHNA

Mechanical Engineering Department, Chaitanya Bharathi Institute of Technology,
Gandipet, Hyderabad, Telangana State, India

ABSTRACT

Investigations were carried out to study exhaust emissions of a low grade low heat rejection (LHR) diesel engine with ceramic coated cylinder head [ceramic coating of thickness 500 microns was done on inside portion of cylinder head] with different operating conditions [normal temperature and pre-heated temperature] of linseed biodiesel with varied injector opening pressure and injection timing. Exhaust emissions of particulate emissions and nitrogen oxide (NO_x) levels were evaluated at different values of brake mean effective pressure (BMEP) of the engine. Comparative studies were made with conventional engine (CE) with biodiesel and also with mineral diesel operation with similar working condition. Particulate emissions decreased while NO_x levels increased with engine with LHR combustion chamber with biodiesel in comparison with CE.

KEYWORDS: Biodiesel, Crude Vegetable Oil, Exhaust Emissions, LHR Combustion Chamber